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Victorian Entomologist



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News Bulletin of
The Entomological
Society of Victoria
inc.

THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc) MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

OBJECTIVES

The aims of the Society are:

- (a) to stimulate the scientific study and discussion of all aspects of entomology,
- (b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
- (c) to compile a comprehensive list of all Victorian insect species,
- (d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

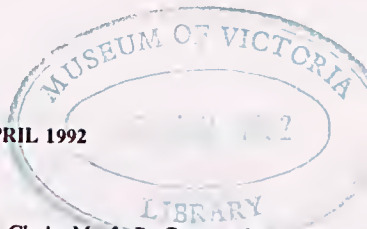
The Society's meetings are held at Clunies Ross House, National Science Centre, 191 Royal Parade, Parkville, Victoria, at 8 p.m. on the third Friday of even months, with the possible exception of the December meeting which may be held earlier. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS

Ordinary Member	\$20.00
Country Member	\$16.00 (Over 100 km from GPO Melbourne)
Student Member	\$12.00
Associate Member	\$ 5.00 (No News Bulletin)

No additional fee is payable for overseas posting by surface mail of the news bulletin. Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

Cover Illustration by Jenny Browning, 1992
Ogrys sp (♀) from Lake Douglas, near Kalgoorlie, WA



MINUTES OF GENERAL MEETING, 24 APRIL 1992

The President, R. Field, opened the meeting at 8.06pm.

Present: J. Burns, P. Carwardine, K. & E. Clark, M. & P. Coupar, D. Dobrosak, K. & J. Dunn, I. & M. Endersby, R. Field, A. & E. Farnworth, P. Kelly, M. Malipatil, S. Smith, D. & N. Stewart, K. Walker, S. Watson.

Apologies: D. Crosby, D. & J. Holmes, M. & B. Hunting, T. New.

Minutes: Minutes of the February meeting (*Vic. Ent.* 22: 29-32) were received. (Malipatil/Stewart).

The President then introduced the guest speaker for the evening, Mr. Robin Adair. The title of Robins's talk was the "South African insect fauna with potential for biocontrol of Boneseed and Bitou bush in Australia." He presented a well illustrated talk showing slides of some of the 19 potential biocontrol agents that are currently under investigation. These included moths, beetles, flies and mites. Robin demonstrated the need for collaborative work between various countries to tackle biological problems in Australia. Peter Kelly proposed a vote of thanks to the speaker.

Correspondence: Detailed. Received (Kelly/Dunn)

Treasurer's Report: Through the Secretary, David Crosby communicated the only change to the financial statement last published was the General Account is now \$2408.66.

Editor's Report: Malipatil discussed the price difference for postage of the *Vic. Ent.* with a hard cover. As the difference is only \$0.04 per copy it was decided to implement the hard cover. Only two articles were in hand for the next issue and Mali made a request for more articles.

Excursions: Peter Carwardine talked about two possible weekend excursions to the Grampians and Licola or a day visit to Lorne.

General Business: 1. Elections:
E. Grey: Ordinary Membership
Nominated by: K. Walker
Seconded by: D. Crosby

There was a call for election by a show of hands.

2. The President notified the meeting of the Council's Zoo Le Souef Award decision as minuted.

3. Members were notified that nomination and proxy forms for the AGM are available from the Secretary.

4. Ken Walker informed the meeting of the publication by the late Gordon Burns and Mrs Joy Burns entitled "The distribution

of Victoria Jewel beetles (Coleoptera: Buprestidae) - an ENTRECS project" in the Occasional Papers from the Museum of Victoria Vol. 5 (1992) pp. 1-53.

Exhibits: Only one exhibit was presented by Mike Coupar on *Pterolocera* (Lepidoptera: Anthelidae) adult moths collected from native reserves.

The President thanked the guest speaker again and members for their attendance. The meeting closed at 9-40pm.

MINUTES OF COUNCIL MEETING, 15 MAY 1992

The President, R. Field, opened the meeting at 8.01pm.

Present: P. Carwardine, D. Crosby, K. Dunn, I. Faithfull, R. Field, M. Hunting, M. Malipatil, P. Kelly, T. New, K. Walker.

Minutes: Minutes of the March Council Meeting (*Vic. Ent.* 22(2): 32-35) were discussed. (Accepted Hunting/New). Ian Faithfull left the meeting at 8.17pm and requested his departure be minuted.

Correspondence: Detailed and received. (Hunting/New)

Treasurer's Report: Financial Statement as of 20 March 1992 was received from D. Crosby as follows:

General Account	\$2443.37
Le Souef Award Account	\$2038.69
Junior Encouragement Fund	\$470.58

Membership:

Country	70
Metro	45
Student	5
Life	2
Joint	5
Total	127

Subscribers	12
Unpaid 1992 subs	38

As the term deposit matures in June 1992, discussion was held on interest rates etc. A motion was proposed and passed as follows:

"Propose that when the term deposit of \$500 with the SEC matures on 14 June 1992 it be renewed to 14 June 1995." Crosby/New. Carried.

Report accepted Carwardine/Kelly.

Editor's Report: Mali Malipatil noted that only three (3) articles were on hand for the next issue and called for pens to be put to paper. The next issue will begin the hard cover format.

Excursions: Peter Carwardine reported on Licola accomodation rates and will check on tariffs at other proposed venues. National Park permits were discussed. Wilsons Promontory and Kinglake West were suggested as future excursion sites.

General Business: (1). Junior Encouragement Award. The President had circulated an advertisement for the award before the meeting and it was discussed. The meeting accepted the draft and it will be published in the News Bulletin. Copies will be sent to Naturalists' Clubs in Melbourne and members are requested to assist with distribution to as many venues as possible (eg. schools, libraries etc.)

(2). Officer Bearers Nominations

President:	R. Field
Vice President:	P. Carwardine
Vice President:	Vacancy
Hon. Secretary:	Vacancy
Hon. Treasurer:	Vacancy
Public Officer:	Vacancy
Hon. Editor(s):	M. Malipatil/K. Dunn
Excursions Sec:	P. Carwardine
Councillors:	M. Hunting, B. Vardy, several vacancies.

(3). Proposed Program.

August- Peter Cole, Parasitoids of Noctuid Moths

October- Alan Yen, Conservation Statement

(4). Zoo LeSouef Memorial Award

Discussion was held regarding the membership of the subcommittee and the following was resolved:

"Membership of the Zoo LeSouef Memorial Award Subcommittee will consist of the President, Immediate Past President, Secretary and two nominated persons." Kelly/Crosby. Carried.

(5). David Crosby suggested the Society publish the legislation governing the export of insect specimens.

(6). The Public Officer requested names of members who have returned their membership application forms be listed:

P. Bedford, R. Burns, G. Cope, J. d'Apice, I. Endersby, A. & E. Farnworth, G. Farrell, A. Hyman, P. Karagiris, J. Kerr, G. Krake, A. Leavesley, G. Mayo, P. O'Carroll, G. O'Reilly, E. Petrie, M. Schutze, C. Smithers, M. Williams, G. Wurtz.

The meeting closed at 9.42pm.

THE ENTOMOLOGICAL SOCIETY OF VICTORIA JUNIOR ENCOURAGEMENT AWARD

The Society will be offering encouragement awards to all juniors (under 18 years of age) attending and presenting items of interest (for example, preserved insect collections, insect photographs, unusual entomological observations for discussion) at General meetings of the Society for the remainder of 1992 (19 June, 21 August, 16 October, 11 December). Awards will consist of a choice from a range of insect collecting equipment and books to the value of \$25 per junior each meeting. All juniors attending at least two of the remaining four meetings for 1992 will receive free membership for 1993.

EDITORIAL

It has been an enjoyable experience editing the *Victorian Entomologist* during the 1991-92 financial year. I thank the following people for assisting me with the production work: Jill McColm, Ken Scott and Sue Hiras of IPS WP Unit typed some articles and formatted copies for the printer; Ian Faithfull undertook much of the production work for the February issue; Kelvyn Dunn, Ian Faithfull, Peter Kelly and Tim New assisted with the reviewing of some articles; and Bob Fisher sent items for the "Grapevine".

Our new printer, AGMEDIA, has provided improved and cheaper service. From the beginning of the year a new cover illustration was introduced. I always welcome feedback on how we can improve the Newsletter.

One serious matter, we are always short of articles. If you have any observations, new records or information on distribution or host plants please come forward and publish in the newsletter, also any news items for the grapevine.

Thanks again for your support over the last 12 months.

M. Malipatil

BIOLOGICAL CONTROL OF BONESEED AND BITOU BUSH (*CHRYSANTHEMOIDES MONILIFERA*) IN AUSTRALIA

Robin Adair
Department of Conservation & Environment
Keith Turnbull Research Institute
PO Box 48, Frankston 3199

Introduction

The southern African shrub *Chrysanthemoides monilifera* (L.) Norlindh (Asteraceae: Calenduleae) has six subspecific taxa, two of which are naturalised in Australia: Bitou Bush *C. m. rotundata* (DC) Norlindh and Boneseed *C. m. monilifera* (L.) Norlindh. Bitou Bush is a sprawling shrub found in littoral areas of eastern Australia with main infestations occurring in New South Wales. Boneseed is an erect shrub to small tree up to 6 m and is widely distributed in south-eastern Australia with main infestations occurring on the Mornington Peninsula in Victoria and the Mount Lofty Range in South Australia. Both subspecies invade native vegetation and cause structural alterations to vegetation communities, reduce floristic diversity and consequently may degrade habitat availability for native fauna. Chemical and physical control techniques, although effective on small infestations, are inappropriate for broad-scale use in native vegetation due to high costs and the risk of non-target damage. In 1987, the Standing Committee on Agriculture accepted *C. monilifera* as a target for biological control. Consequently, a collaborative project with the Victorian Department of Conservation and Environment and the CSIRO Division of Entomology was established to search for potential biological control agents in South Africa and to evaluate their host specificity and potential for control. Agents approved for release in Australia are mass-reared at three laboratories (Keith Turnbull Research Institute (VIC), Alan Fletcher Research Station (QLD), Agricultural Research Station (NSW)) and releases of insects are made with the co-operation of state authorities or institutions directly involved with the management of *C. monilifera*.

Five insect species have been fully evaluated as potential biological control agents under quarantine conditions in Australia. Three of these have been approved for release: *Comostolopsis germana* Prout (Bitou Tip moth), *Chrysolina* sp. (Black Boneseed Leaf Beetle) and *Chrysolina picturata* (Clarke) (Blotched Boneseed Leaf Beetle). An application for the release of *Chrysolina oberprieleri* Daccordi (Painted Boneseed Leaf Beetle) is currently being prepared. In host specificity tests, the leaf-beetle *Ageniosa electoralis* Vogel damaged several non-target test plant species and requires further evaluation under field conditions in South Africa before releases in Australia can be considered.

Agents with host specificity tests completed

Comostolopsis germana (Bitou Tip Moth)

Comostolopsis germana is a common insect on *C. monilifera* in southern Africa. It occurs in sub-tropical regions of Natal through to the Mediterranean-type climate areas of south-west Cape Province. It has been recorded feeding on all subspecies of *Chrysanthemoides monilifera* and *C. incana* (Burm. f.) Norlindh.

The larvae of *C. germana* feed in the shoot tips where they construct a canopy of silk and plant hairs over the feeding site and consume young leaves, petioles, flower buds and stems. Petals and unripe fruits may also be attacked. Several larvae may occur on a single shoot tip. High densities of *C. germana* larvae may retard shoot elongation of *Chrysanthemoides monilifera* and suppress the production of flowers and fruits. The success of *C. germana* as a biological control agent in Australia will depend on its ability to maintain high population densities during the main growth and flowering periods of *Chrysanthemoides monilifera*. The insect is most abundant in sub-tropical areas of southern Africa and, therefore, is likely to have its greatest impact on *C. m. rotundata* which occupies a similar climatic zone in Australia.

Release program

The first release of *C. germana* (ex Natal) was made at Hastings Point (NSW) 1988 where approximately 400 first instar larvae were transferred onto shoot tips. The insect did not establish at this site. During December and January 1989, 3,000 pupae were released at Tacking Point near Port Macquarie and an established population of *C. germana* was first observed the following summer. The colony has spread and now occurs up to 1 km north and south of the release point. Further releases of larvae and pupae have been made in northern New South Wales at Illuka and Hastings Point where establishment may also have occurred. Releases of *C. germana* (ex Cape Town) have recently been made in central and southern New South Wales at Port Stevens, Gosford, Woolongong, Moruya and Jervis Bay. Releases of eggs and neonate larvae of *C. germana* have been unsuccessful and this release technique has been abandoned. All future releases of *C. germana* will be of pupae.

During autumn 1992, releases of *C. germana* will continue on Bitou Bush infestations at Jervis Bay, Moruya and Gosford. New release sites will be established at Woolongong (NSW), Tatbra (NSW), Dromana (Vic), You Yang Range (Vic) and two sites in the Mount Lofly Range (SA) during the spring-summer period of 1992. All releases will consist of at least 1,500-2,000 pupae.

Chrysolina sp. (Black Boneseed Leaf Beetle) (Fig. 1)

The Black Boneseed Leaf Beetle (BBLB) is only known from ten locations near Grahamstown in eastern Cape Province, South Africa. The natural host plant of this beetle is *C. monilifera pisifera* (L.) Norlindh, a subspecies that is not present in Australia. In its native habitat the BBLB can cause severe defoliation damage to *C. m. pisifera*. Adults and larvae feed on young leaves, stems and flowers in the upper canopy of the host. Actively growing plants are preferred to those that are old or senescing. Extensive defoliation damage by the BBLB is likely to reduce the vigour and reproductive capacity of *C. monilifera* and thereby facilitate the re-establishment of more desirable species. In caged feeding-tests in Australia the BBLB was found to be specific to *C. monilifera* and capable of causing severe defoliation damage to Boneseed. Although feeding and complete development occurred on Bitou Bush, adult emergence levels were lower than that for Boneseed. A climate comparison between the South African distribution of the BBLB and Australian infestations of *C. monilifera* identified the coastal regions of southern NSW, eastern Victoria and eastern Tasmania as suitable for release of the BBLB. Consequently, these areas have been chosen as priority areas for the release of this insect.

Release program

The BBLB was first released in September 1989 at Studley Park, Melbourne where a small number of larvae were placed on young Boneseed plants. The insect failed to establish at this site. Subsequent releases of eggs or adults were made during 1990-92 at two locations in New South Wales (Tathra, Moruya), Jervis Bay (ACT) and five locations in Victoria (Bittern, Arthurs Seat, You Yang Range, Lakes Entrance, Anglesea). Releases of adults were also made by the Tasmanian Department of Primary Industry at several locations in Tasmania including Hobart and Devonport. Establishment has failed to occur at all sites except for adult releases at Arthurs Seat and Hobart where adults have persisted and reproduced at the release site. Monitoring of the BBLB at these sites is being undertaken to determine the status of the populations.

Further releases of the BBLB are planned for Boneseed infestations in Victoria at Arthurs Seat and the You Yang Range where a minimum of 4,000-6,000 adults will be liberated at each site. Releases of the BBLB on Bitou Bush infestations in eastern Australia have been delayed until the insect is established in Victoria and/or Tasmania.

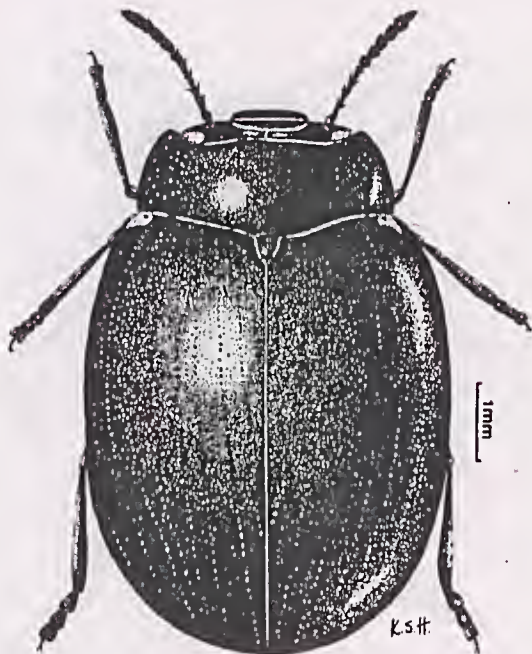


Fig. 1. *Chrysolina* sp.

Ecological studies

Larvae and eggs of the BBLB are susceptible to predation by generalist predators such as ants, spiders, birds and lacewings. Larvae are also attacked by an unidentified tachinidae. Predation pressure may be an important factor limiting the build-up of BBLB populations at field release sites. Quantitative studies on the impact of predation on eggs of the BBLB at Arthurs Seat (Vic) indicate that during the late summer-autumn period up to 80% of eggs are destroyed. Further studies are being planned to identify the species feeding on BBLB eggs and their period of activity throughout the year. Similar studies are also planned for other life stages of the BBLB. Identifying the factors responsible for the failure of the BBLB to establish will provide important ecological information that can be used to select more successful biological control agent in the future.

Chrysolina picturata (Blotched Boneseed Leaf Beetle) (Fig. 2) and *Chrysolina oberprieleri* (Painted Boneseed Leaf Beetle) (Fig. 3)

Chrysolina picturata (Fig. 2) and *Chrysolina oberprieleri* (Fig. 3) are leaf-feeding beetles that cause severe defoliation to *C. monilifera* in South Africa. The Blotched Boneseed Leaf Beetle

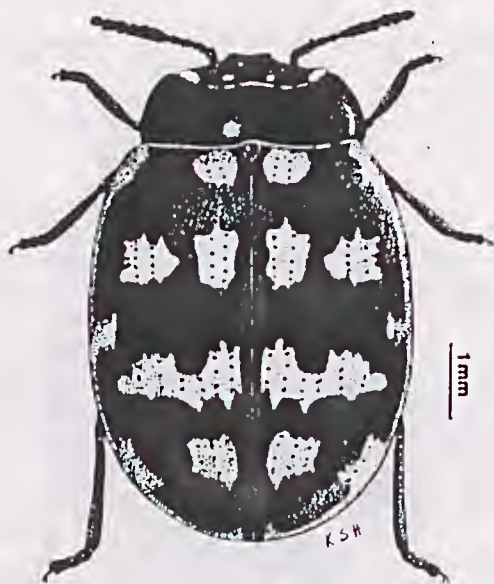


Fig. 2. *Chrysolina picturata* (Clarke)

is restricted to a small nature reserve and an adjacent site in southern Cape Province where it feeds on *C. m. pisifera* and *C. ni. monilifera*. *Chrysolina picturata* is the only chrysomelid recorded feeding naturally on Boneseed in South Africa. *Chrysolina oberprieleri* occurs widely in the near coastal areas of western Cape Province where it has been found on *Chrysanthemoides monilifera pisifera* and *Chrysanthemoides incana*. Both *Chrysolina picturata* and *C. oberprieleri* appear to have lower threshold temperatures for development than *Chrysolina* sp. (BBLB) and also differ from the latter species in that eggs are deposited in the soil and litter beneath the host plant (cf. foliage oviposition for *Chrysolina* sp.). Oviposition in soil and litter may avoid egg predation by arboreal egg-feeders which appear to be preventing the establishment of the BBLB at release sites in Victoria. Climate comparisons between South Africa and Australia indicate that the Mount Lofty Range in South Australia) is best suited for the release of *C. picturata*. *Chrysolina oberprieleri*, which occurs in a drier climate than *C. picturata*, is suited for release on the Yorke and Eyre Peninsulas. These areas have therefore been selected as the primary release sites for these insects.

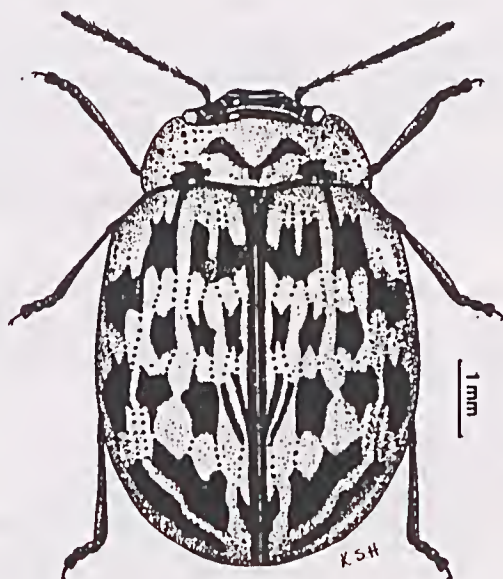


Fig. 3. *Chrysolina oberprieleri* Daccordi

Host specificity testing has been completed for *Chrysolina picturata* and *C. oberprieleri* and both species were only able to complete development on *Chrysanthemoides monilifera*. In laboratory feeding-tests, *C. picturata* had significantly higher adult emergence levels on Boneseed than on Bitou Bush, while *C. oberprieleri* developed equally well on both subspecies. Approval for the release of *C. picturata* was issued by the Australian Quarantine and Inspection Service (AQIS) in May 1992. An application for the release of *C. oberprieleri* is being prepared.

Release program

Releases of *C. picturata* and *C. oberprieleri*, pending AQIS approval, are being arranged with the South Australian Animal and Plant Control Commission. Initial releases of 2,000-5,000 sexually mature adults will be made at four sites for each species. For climatic and host suitability reasons, *C. picturata* will not be released on Bitou Bush infestations in eastern Australia. However, a release of *C. oberprieleri* on the central-south coast of NSW is being contemplated for 1993.

Ageniosa electoralis (Chrysomelidae)

Ageniosa electoralis, a nocturnal leaf-feeding beetle, is known from three locations in Natal, South Africa where the adults and larvae feed on Bitou Bush and cause considerable defoliation damage. In preliminary host-specificity tests, *A. electoralis* appeared to be specific to *C. monilifera*, but in detailed tests several plants of economic importance in Australia (Carrot, Globe Artichoke), 2 ornamental/culinary species (Coltsfoot, Calendula), 3 native species (Austral Bear's Ear, Creeping Cotula, Coast Daisy Bush) and the pasture weed Cape Weed were found to be suitable for the complete development of the insect. Despite this, *C. monilifera* was the only test plant species where both high levels of adult emergence and oviposition were recorded, indicating that *C. monilifera* is a principal host species. *Ageniosa electoralis* has not been recorded attacking species of economic importance in South Africa suggesting that the insect may be more specific under field conditions. Field-based specificity tests in South Africa are required to clarify the host range of this insect.

Biological control agents listed for evaluation (1992-1993)

Three potential biological control agents have been listed for detailed evaluation for host specificity and suitability for release during the next twelve months.

Cassida sp. (Bitou Tortoise Beetle)

The Bitou Tortoise Beetle occurs on *Chrysanthemoides m. rotundata* at Kidds Beach in Eastern Cape Province. The adults and larvae feed on the leaf blades causing characteristic a 'pitting' damage. In South Africa, the insect is most abundant during the summer months, but has not been recorded in high numbers, probably because of high levels of parasitism. Preliminary host specificity tests have established that the Bitou Tortoise Beetle will complete development on *Calendula officinalis* L. (Garden Calendula), an ornamental annual closely related to *Chrysanthemoides monilifera*. Feeding and development was not recorded on other Asteraceae species. Detailed host specificity tests and life history studies of *Cassida* sp. are in progress.

Mesoclanis spp. (*Chrysanthemoides* Seed Flies)

Three species of *Mesoclanis* (*M. dubia* (Walker), *M. magnipalpis* (Bezzi), *M. polana* Munro) have been identified as potential biological control agents for *Chrysanthemoides monilifera*. The larvae feed in the receptacle of the inflorescence or in the developing drupes where a larva completes its development within a single fruit. *Mesoclanis dubia* is found on *Chrysanthemoides m. monilifera* and *C. m. pisifera*; *M. magnipalpis* occurs on *C. m. monilifera*, *C. m. rotundata* and *C. incana* while *M. polana* is found on *C. m. rotundata* and *C. m. pisifera*. *Chrysanthemoides* Seed Flies have not been reared under laboratory conditions, although mating and oviposition have been recently been achieved by providing newly emerged flies with a protein source (milk powder) and unopened buds of *C. monilifera*. The eggs of *Mesoclanis* spp. are laid at the base of erect petals in the flower bud. Larvae have not yet been reared through to adults, but should be possible using potted plants with pollinated flowers. The life stage of *Chrysanthemoides* Seed Flies which passes from one flowering season to the next has not yet been discovered. Testing the host specificity of *Mesoclanis* spp. is likely to be difficult and time consuming as the flowering of test plants will need to be closely synchronised with the emergence of adult flies. During 1992 importations of *Mesoclanis* spp. will be made to develop laboratory-rearing techniques and to identify the inter-flowering/fruiting period life stage. Host tests will commence if sufficient number of flies can be reared.

Cerambycidae (Tip Wilt Cerambycid)

An unnamed species of Cerambycidae has been found to damage to upper canopy stems of Bitou Bush in eastern Cape Province, South Africa. The larvae feed on the internal tissue of the stem causing wilting and eventually death of the stem. Adults lay eggs readily on potted plants in the laboratory, but little else is known of its life cycle.

Potential biological control agents listed for evaluation 1993-1996

Tortrix sp. (*Chrysanthemoides* Leaf-Roller Moth)

An unidentified Tortricid moth, probably in the genus *Tortrix*, causes damage to the growing tips of all subspecies of *C. monilifera* and *C. incana* in South Africa. High infestation levels of this insect have been recorded which have resulted in severe damage to the host plant. In preliminary host specificity tests in South Africa, newly emerged larvae completed development on several Asteraceae species and adults showed on clear choice for *Chrysanthemoides* in multiple-choice tests in large cages. However, in the field *Tortrix* has only been found feeding on *Chrysanthemoides incana* and *C. monilifera*. More detailed field-based choice tests and host range surveys in South Africa are required to clarify the specificity of this insect. These should be completed by mid 1993. If warranted, an application for the importation of this insect into quarantine will be prepared.

Aecidium osteospermi (*Chrysanthemoides* Rust Fungus)

The *Chrysanthemoides* Rust Fungus is often found attacking mature bushes of several subspecies of *C. monilifera* in south-west Cape Province. The life cycle of the

Chrysanthemoides Rust Fungus has not been fully described and it is unclear whether alternative hosts are required for the survival of the organism. Life history studies in the laboratory and the field are required before importation of this potential agent can be contemplated.

Pyralidae (Tip Wilt Moth)

The larvae of an unidentified Pyralid moth are common during spring on *C. m. pisifera* in south west Cape Province. The larvae feed on the vascular tissue of the stem causing wilting and death of the stem. Larvae have also been recorded feeding within the receptacle and flowers where they are likely to reduce the level of fruit set. Little is known on the life history of this insect. Efforts are being made to have the insect identified, to describe its biology and to determine the level of specificity within subspecies of *C. monilifera*.

***Aceria neseri* (*Chrysanthemoides* Leaf-Bunch Mite)**

The *Chrysanthemoides* Leaf-Bunch Mite has been found on *C. m. monilifera*, *rotundata* and *pisifera* in South Africa. In shaded situations this arachnid causes leaf distortion, mainly stunting, and bushes may be severely affected. No data is available on its specificity, but it has not been recorded attacking plants of economic importance in South Africa.

Aleyrodidae (*Chrysanthemoides* White Fly)

Virtually nothing is presently known about the biology and specificity of this insect. Preliminary observations indicate this insect could be sufficiently damaging to warrant further evaluation as a potential biological control agent.

Acknowledgement

Karen Harmer kindly prepared the illustrations of *Chrysolina* spp.

NOTES ON THE BUTTERFLIES *GRAPHIUM EURYPYLUS* (LINNAEUS)
AND *TIRUMALA HAMATA* (MACLEAY) IN THE SYDNEY REGION

Stephen Langley
794 Barrenjoey Road, Palm Beach, N.S.W. 2108

Atkins (1992) detailed a number of species including *Graphium eurypylus* (Linnaeus) and *Tirumala hamata* (Macleay) observed migrating in the Hunter Valley region of New South Wales in the past season. To these notes I wish to add my own observations from the Sydney region; I had not encountered these two species in such numbers in the Sydney area prior to this summer.

At 8.30 am on 12 February 1992 I noticed a large number of butterflies in my garden. It was very humid and the first sunny day after a week of rain. There is a large lantana bush in the backyard and it has provided a good hunting ground for specimens.

Over the last few summers I have managed to take quite a large variety of species including *Graphium macleayanum* (Leach), *Trapezites symmonius* Hubner, *Hesperilla picta* (Leach), *H. ornata* (Leach), along with the more common *Euploea core corinna* Macleay, *Graphium sarpedon choredon* (C. & R. Felder), *Papilio aegaeus* Donovan and others. However on this particular day I was pleasantly surprised by the appearance of a number of *Graphium eurypylus*. I caught a perfect male of a rich blue colour identical to the blue of *P. sarpedon*, in fact I originally thought it to be *P. sarpedon* on first sighting. I also took a fairly tatty specimen (♂) which was pale yellow in colour. A further 3 specimens were sighted - all appeared to be in perfect condition.

Around 1 pm I took a very pale and worn *Tirumala hamata* (♂) and had another two sightings of *T. hamata*. They were rich blue specimens in good condition and were both flying in a southerly direction. The previous day I had made two sightings of *T. hamata*, one at Mona Vale and the other at Hornsby - again both specimens were flying south. Following further sightings over the next couple of weeks I caught a perfect deep blue specimen (♀) at my lantana bush in Palm Beach, again around 1-2 pm in the afternoon, the time at which most sightings of *T. hamata* had been.

I would also like to mention that during the last two summers there have been quite a number of skippers in my garden which I believe are *Hasora chromus* (Cram.). There have been more this summer and I have taken both males and females - one unusual male specimen was with a deformed blunt and rounded small forewing.

Reference

Atkins, A. 1992. Migratory Lepidoptera in January 1992, on the central coast of New South Wales. *Victorian Entomologist* 22: 41.

NEW DISTRIBUTION RECORDS FOR SOME AUSTRALIAN MOTHS

Kelvyn Dunn

Institute of Plant Sciences, Swan St., Burnley Vic. 3121

Among our collection of Australian moths, which comprises part of the Victorian Agricultural Insect Collection (VAIC) at IPS Burnley, are the following records which represent range extensions to those documented by Common (1990) in *Moths of Australia*. Most of the species concerned are large and attractive, and illustrations can be found in Common (1990).

COSSIDAE

Xyleutes affinis Roths.

One male from Red Hill, Mornington Peninsula, collected in January 1964 by David Holmes represents the first record of this large cossid from Victoria. Common (1990) specified the general distribution south to southern New South Wales.

AGANAIDAE

Neochera dominia basilissa (Meyr.)

One adult from the Bluewater Range [west of Townsville] northern Queensland, taken in December 1990 by Terry Woodger and Les Ring, represents an extension to the known range south from Cardwell.

PYRALIDAE

Ubida ramostrrella (Walk.)

Common (1990) listed this large pyralid as occurring as far north as central Queensland. An adult taken at Balgal [near Townsville] in March 1991 by L. Weight extends the known range further north into northern Queensland.

Orosana ophideresana Walk.

One adult from Mount Buffalo collected in February 1984 by Holmes represents the first record of the species from Victoria. Common (1990) specified the general distribution south to southern New South Wales.

GEOMETRIDAE

Milionia queenslandica Roths.

Common (1990) stated the distribution for this colorful species as from Cooktown to Innisfail northern Queensland. One specimen taken in the Bluewater Range in January 1990 by Woodger extends the known distribution considerably further south to near Townsville.

NOCTUIDAE

Paracrama latimargo Warr.

One adult was taken at a MV light in the Bluewater Range Queensland in December 1990 by Woodger and Ring. This capture extends the known range of the species south from Paluma.

Donuca spectabilis Walk.

A single adult was taken by IPS staff in one of our light traps at 10 km SE of Swan Hill in October 1990. This record represents the first for the species in Victoria.

Chasmina pulchra (Walk.)

An adult was taken by IPS staff [Dr Malipatil and myself] at a MV light set up in the residential area of Tatura, central Victoria, in March 1991. An earlier Victorian specimen was taken at our light trap in the Burnley Gardens in January 1974. Together these captures represent the first record of this species for Victoria. The Burnley adult was probably a vagrant as there are no others in the VAIC from near Melbourne. Moreover, a number of other northern lepidopterans were reported in Victoria south to near Melbourne in the unusual seasons of 1973-74 (see Quick 1974). The species might, however, be established in central Victoria.

Achaea argilla Swin.

Common (1990) noted that this predominantly northern species has been taken only spasmodically in southern Australia. A single specimen taken at our light trap in the Burnley Gardens in February 1974 undoubtedly represents one of the most southern records. No other specimens have since been taken at our light trap so it was probably a vagrant associated with the unusual season of that year (cf. comment for *C. pulchra* above).

Acknowledgements

Thanks to T.A. Woodger [of Townsville] and D.R. Holmes [of Dromana] for their supply of moths for incorporation into the VAIC.

References

- Common, I.F.B. 1990. *Moths of Australia*. Melbourne University Press Victoria
- Quick, W.N.B. 1974. Some abnormal insect records for the summers of 1972-73, 1973-74. *Victorian Entomologist* 4: 66-71

ON THE TAXONOMIC CHANGES TO LYCAENID-ASSOCIATED ANTS OF THE GENUS *IRIDOMYRMEX*

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A review of the generic placement of species assigned to the ant genus *Iridomyrmex* was recently carried out by Shattuck (1992). He placed these species into 7 genera, including the *Iridomyrmex* which now contains only 63 species rather than the original 153. The changes affect the nomenclature of some species and species-groups known to have associations with Australian lycaenid butterflies. The changes also give deeper perspective to ant-butterfly interactions and the distribution of some Australian lycaenids.

Converting the revised nomenclature of host ant species and species groups to host ants listed by Common and Waterhouse (1981) and Dunn and Dunn (1991), the following ant/lycaenid associations are thus:

<i>Iridomyrmex</i> (<i>rufoniger</i> group) -	<i>Ogyris amaryllis meridionalis</i> <i>Jalmenus daemeli</i> <i>J. icilius</i>
<i>Iridomyrmex</i> (<i>purpureus</i> group) -	<i>Jalmenus eichhorni</i> <i>J. iclinus</i>
<i>Iridomyrmex</i> (<i>gracilis</i> group) -	<i>Jalmenus inous</i> <i>Candalides heathi alpinus</i> <i>Lucia limbaria</i>
<i>Iridomyrmex</i> (<i>nitidus</i> group) -	<i>Acrodipsas myrmecophila</i> <i>Hypochrysops ignitus ignitus</i>
<i>Iridomyrmex</i> (<i>anceps</i> group) -	<i>Jalmenus evagoras</i>
<i>Anonychomyrma gilberti</i> -	<i>Pseudodipsas eone iole</i> <i>Pseudodipsas cephenes</i> <i>Hypochrysops miskini</i>
<i>Anonychomyrma nitidiceps</i> -	<i>Paralucia aurifera</i> <i>Hypochrysops epicurus</i> <i>H. cyane</i> <i>Ogyris amaryllis amaryllis</i> (" <i>amata</i> ")
<i>Anonychomyrma itinerans</i> -	<i>Hypochrysops piceatus</i> <i>Ogyris aenone</i>

Philidris cordatus - *Hypoclrysops theon medocus*
H. apollo apollo
Jamides cytus

Ochetellus glaber - *Theclinesthes onycha onycha*

Shattuck also lists the distribution of the above ant genera:

Anonychomyrma - New Guinea, Solomon Islands, Australia

Iridomyrmex - India and east to China and south to Australia

*Ochetellus** - Japan and south through Burma and the Philippines to Australia

Papyrius * - New Guinea, Australia

Philidris * - Extreme eastern India and east through South East Asia to the Philippine Islands, northern Australia and the Solomon Islands.

* = new genera described by Shattuck (1992).

Iridomyrmex foetans the apparent host ant of *Pseudalmenus chlorinda* (see Common and Waterhouse 1981) is not listed in Shattuck's paper.

There appears to be some correlation between ant and lycaenid genera listed. Common and Waterhouse also list "small black ants" as associated with a number of other Australian Lycaenidae and it is probable that many of these ants belong to *Iridomyrmex* and related genera. There is an obvious need to identify these ant attendants.

References

Common, I.F.B. & Waterhouse, D. F. 1981. *Butterflies of Australia*. Angus & Robertson, Sydney.

Dunn, K.L. & Dunn, L.E. 1991. *Review of Australian Butterflies: distribution, life history and taxonomy*. Part 3. Privately Published, Melbourne.

Shattuck, S.O. 1992. Review of the Dolichoderine ant genus *Iridomyrmex* Mayr with descriptions of three new genera (Hymenoptera: Formicidae). *Journal of the Australian Entomological Society* 31: 13-18.

BOOK REVIEW

'Butterfly Conservation' by T.R. New

Oxford University Press, South Melbourne. 224pp. 1991 (Publication date, February 1992). RRP\$24.95.

The first question that many would ask about a book entitled 'Butterfly Conservation' is whether it is primarily a book about butterflies or about conservation. The author uses probably the best known and most popular group of insects (although the disturbing frequency with which one comes across the phrase 'butterflies and insects' indicates that many people are still in need of further entomological education) to illustrate a difficult concept (insect conservation), and this results in a book that neatly balances both 'butterflies' and 'conservation.'

Tim New achieves this objective by using the concept of 'flagship taxa' - butterflies are used as a group to illustrate and advertise important concepts, in this case, that insects are subject to threatening processes and are just as likely to decline as the better known birds and mammals.

The book begins with a brief introduction to butterflies (Chapter 2), some issues in the conservation of butterflies (Chapters 3 and 4), information on how to conserve butterflies (Chapters 5, 6 and 8), and some case studies (Chapter 7). The book ends with a glossary that explains some of the more scientific terms, and a fairly comprehensive bibliography.

The author has covered the important issues well, but I feel that the case studies (Chapter 7) would have better placed after discussing butterfly conservation issues (Chapters 3 and 4) and before the chapters on how to conserve butterflies (Chapters 5, 6 and 8).

The book has a few minor faults, probably editorial. These are:

1. Table captions are generally placed at the bottom of the tables. I find this most confusing, and would prefer them at the top so that we immediately know what the table is about.
2. The presentation on differences between the major families of butterflies could have been improved if some diagrams or photographs had been included.
3. On p. 110, reference is made to 'Dowdeswell and his coworkers', but no date is given. I assume that this refers to 'Dowdeswell 1982' in the bibliography.
4. The reference 'Morris and Wells' on p. 137 should be 'Morris and Webb.'
5. The reference 'Shreeve and Mason' is duplicated on p. 215.

These faults are minor details in an otherwise well researched and presented book. Two other issues in the book require comment. In the case studies, I found that the case of the Mission Blue (p. 169) ended unsatisfactorily because the conservation plans were proposed in 1983, and there is no mention whether they were implemented and their success or failure in more recent years.

The other issue is who it is intended for, and this determines the standard and style of language. This is the question that plagues all authors and publishers. As a professional scientist, I find Tim New's books very readable, and 'Butterfly Conservation' is no different from his earlier books. On reading the book, I felt that one required a fair knowledge of biology to understand the book, and this would preclude the book as a simple introduction to invertebrate conservation. The cover states that the book 'will be of interest to entomologists, naturalists and conservationists,' and I think that the book achieves its aim in this case. Furthermore, I would identify two more groups as potential readers because they would have the necessary background to understand the issues outlined in the book but may not necessarily be aware of them; these are conservation administrators and researchers with plant or vertebrate biology backgrounds, and secondary school teachers.

The author discusses 'flagship taxa' in the book, and I would view 'Butterfly Conservation' as a 'flagship book' in the area of invertebrate conservation. There are not many books available about invertebrate conservation, and as the area is an extremely broad and complicated one, most of the books available are either too broad, restricted to one region in applicability, or too specialised. Tim New's book on butterfly conservation fills a vacant niche in that it presents a broad concept (invertebrate conservation) using a smaller, but well known, group of insects, and has produced an important addition to the field which has international interest. I have no hesitation in recommending it for your bookshelf.

Alan Yen
Museum of Victoria

CORRIGENDA

Williams, M. R. 1992. Controls on the collecting of terrestrial invertebrates in Western Australia. *Victorian Entomologist* 22: 39-40.

The author has requested that the Table 1 from the above article be reformatted and reproduced (as below) to provide a correct impression of the permit system operating in Western Australia.

Table 1. Summary of permits required to collect terrestrial invertebrates in Western Australia.

Location	Invertebrate group	Permit(s) required
Within Nature Reserves and National Parks	Jewel Beetles (Buprestidae) and <i>Nothomyrmecia</i> ants	Permit to collect in National Parks and Nature Reserves Licence to take protected fauna for scientific purposes
	All other terrestrial invertebrates	Permit to collect in National Parks and Nature Reserves
Private or vested ¹ land	Jewel Beetles (Buprestidae) and <i>Nothomyrmecia</i> ants	Permission of landowner or vested authority Licence to take protected fauna for scientific purposes
	All other invertebrates	Permission of landowner or vested authority
Rest of State	Jewel Beetles (Buprestidae) and <i>Nothomyrmecia</i> ants	Licence to take protected fauna for scientific purposes
	All other invertebrates	NIL

¹ : Vested land is land vested in various State government authorities, e.g. W.A. Water Authority, local Shires, etc.

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DIARY OF COMING EVENTS

19 June - Annual General Meeting

Presidential address: "Biology and taxonomy of
Ogyris idmo complex in Western Australia"

17 July - Council Meeting

21 August - General Meeting

Talk by Peter Cole on "Parasitoids of noctuid moths"

Scientific names contained in this document are *not* intended for permanent scientific record, and are not published for the purposes of nomenclature within the meaning of the *International Code of Zoological Nomenclature*, Article 8(b). Contributions are not refereed, and authors alone are responsible for the views expressed.

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